CHAPTER 3

CARBON DIOXIDE TRANSFER EQUIPMENT

Two different models of CO_2 transfer units are used by the Navy. This chapter covers the transfer unit Model SC-5 and the Model 4211. The two units are similar to operate but the maintenance requirements listed in the operator's manuals are different.

MODEL SC-5

Figure 3-1 shows the complete transfer unit setup required to perform CO_2 transfers.

All Model SC-5 units are basically the same except for variations in the motor and the

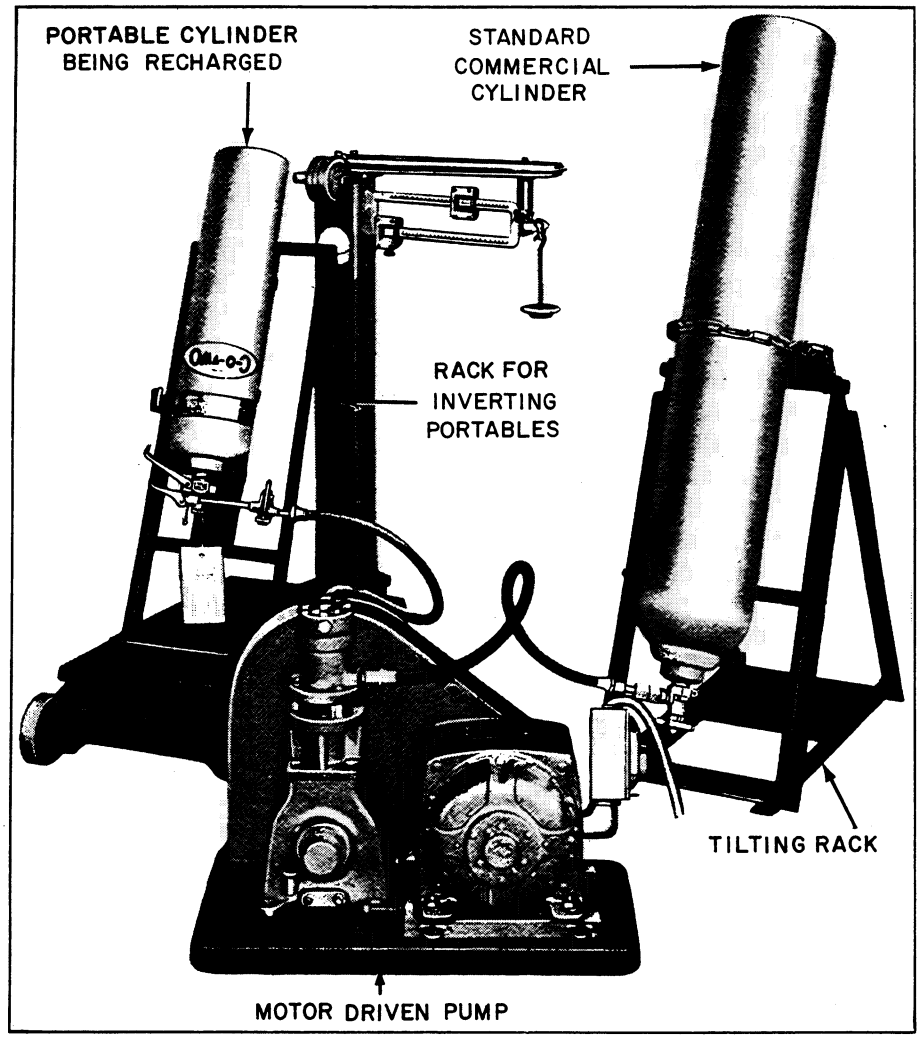

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Figure 3-1.—C-O-TWO Transfer Unit.

starter arrangements. This model was previously manufacturered by two companies, the C-O-Two Fire Equipment and the Norris Fire and Safety Equipment.

The SC-5 motor is mounted on a sliding, adjustable base so that its position maybe altered to take up any slack that may develop in the drive belt.

The SC-5 pump is a single-cylinder design with a working pressure of approximately 3500 pounds per square inch. This unit has the capability of transferring approximately 80 percent or 38 pounds of carbon dioxide from a fully charged 50-pound supply cylinder.

The pump head is fitted with a flangible safety disc. This safety disc is designed to relieve pressure in the pump at 2650 to 3000 pounds per square inch. The safety disc nut prevents any recoil in the event the safety disc ruptures. As you can see in figure 3-2, the safety disc washer is arranged so you can easily replace it.

The lubricating system is an automatic controlled splash type. The oil flow is regulated by a fixed orifice in the oil trough. This action cannot be seen in figure 3-2. A good grade of SAE viscosity #30 automotive oil should be used when you change or add oil.

The drive from the motor to the pump is a combination of V-belt drive pulleys and gears. The small gear and large pulley are assembled together as a unit and are both fitted with ball bearings and mounted on the idler shaft. Both pulleys are carefully balanced. A single guard is secured over both gears and pulleys.

The motor, furnished as standard equipment, is a 1-horsepower capacitor start induction type. It is suitable for operation on either a 110- or 220-volt, single-phase, 60-hertz circuit. (A dc motor is also available.) An enclosed control switch is located on the side of the motor.

INSTALLING AND SERVICING NEW EQUIPMENT

After receiving the equipment, you should examine the components for damage. If the unit is damaged, do not attempt to repair it. Return it to the supply officer for reshipment to the manufacturer.

Since the oil was drained from the crankcase of the pump before it was shipped to the field activities, be sure to fill it with a standard grade of SAE #30 lubricating oil before you start the unit. On pumps equipped with an oil filler plug and measuring stick, fill them only to the upper groove on the stick. On a unit equipped with an oil cup and no measuring stick, fill it to within one-fourth inch of the top of the cup. Other than the crankcase, only one point on the pump requires lubrication. This point is on the shaft of the idler gear and pulley and is equipped with an Alemite lubrication fitting. In spite of the fact that the pulley shaft was lubricated at the factory, it is advisable to relubricate the area with two or three applications (grease gun shots) of light cup grease before you start the unit. The motor bearings contain enough grease to last for approximately 2 years under average conditions.

Before running the pump, you must find an electric circuit compatible to the motor or install one in the shop. Unless otherwise specified, motors are wired to operate on 110-volt, 60-hertz, single-phase circuits. When 220-volt, 60-hertz, single-phase current is available, the hookup of the motor should be rearranged so that it can run on this circuit. A 220-volt wiring diagram is shown on the nameplate of the motor. The plug on the end of the lead conducting the current to the motor from the power outlet should be equipped with a grounding wire, or third wire, which is usually insulated by a white covering. Regardless of whether a three-pronged plug or a pigtail (coming out of the lead near a two-prong plug, fitted with a clip) is used, the system to which you attach this grounding wire must also be grounded to protect the unit.

WARNING

Before you attempt any work on the electrical circuit, be sure the power source is disconnected.

Always “run-in” a new pump or one that has been idle for a long time. This action, accomplished with the CO_2 hoses disconnected, is performed as a check for lubrication to make certain that all parts are thoroughly treated. After you turn off the pump, wipe off all excess lubricants.

Before you pump carbon dioxide, examine all line connections on both the inlet and outlet hoses. Make certain that all connections between the components are tight. This is important since carbon dioxide is stored under approximately 850 psi at an atmospheric temperature of 70°F. Use a slow, steady pull to tighten connections with a wrench no larger than 12 inches in length.

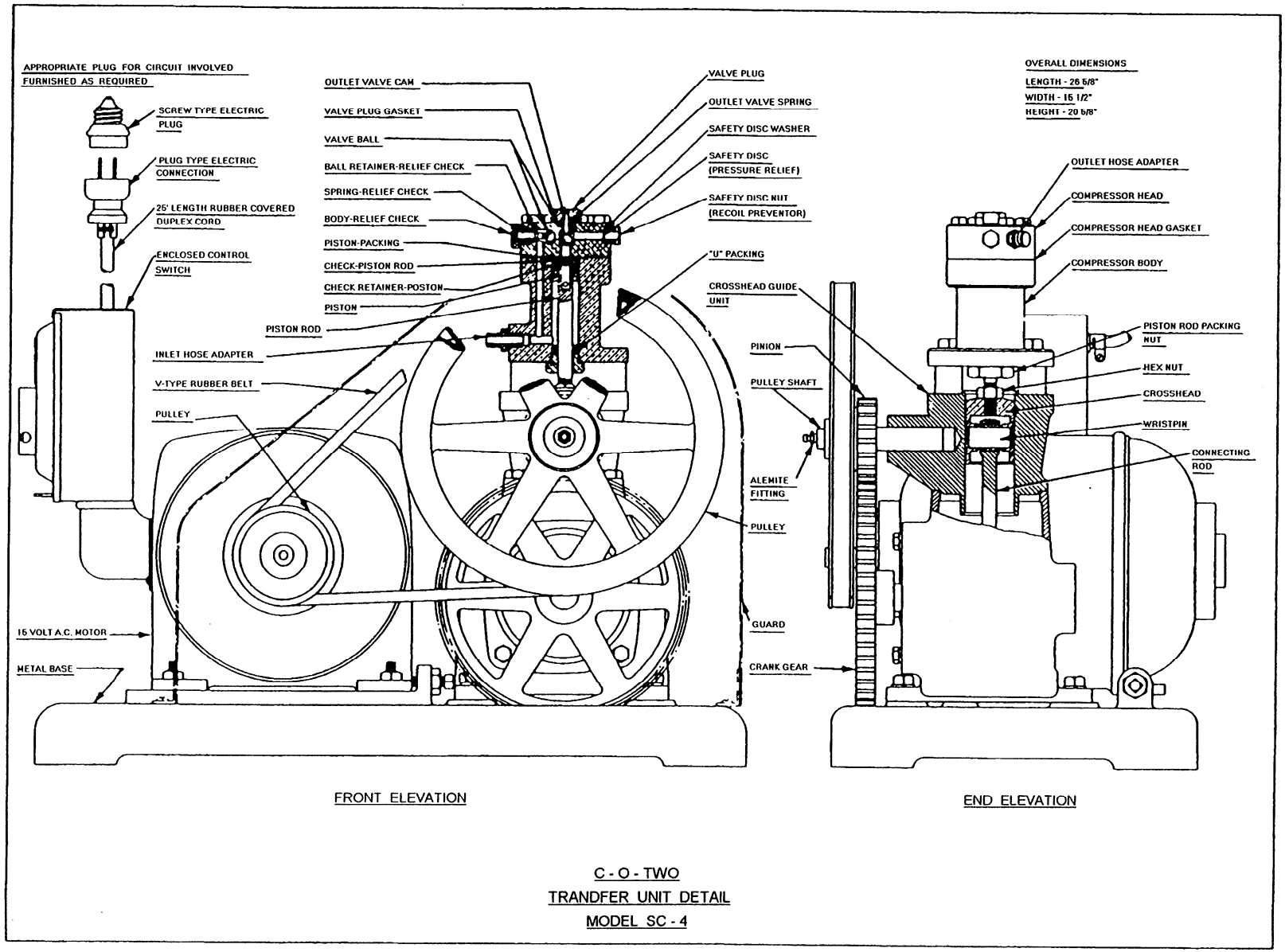


Figure 3-2.—C-O-TWO Transfer Unit Detail.

The transfer unit pumps carbon dioxide in its liquid phase only. This is true of all CO_2 transfer units. The amount of liquid carbon dioxide contained in a fully charged cylinder varies with the pressure and temperature; therefore, a standard 50-pound cylinder contains approximately 38 pounds of carbon dioxide in its liquid phase and approximately 12 pounds in its gaseous phase at an atmospheric temperature of 70°F. Therefore, the cooler the supply cylinder and the cylinder being recharged, the more efficient the operation of the transfer unit. Consequently, all cylinders should be kept in the coolest location possible. Conversely, the time required to charge an empty cylinder increases with increased temperature of the cylinder. When recharging a smaller cylinder, we found that if you invert the cylinder during the recharging period, it remains cooler and fills faster than it would if placed in an upright position. Larger cylinders should be placed horizontally on the scale when they are being recharged.

After all the liquid carbon dioxide is transferred from the supply cylinder, which is approximately 80 percent of the net contents, the transfer of CO_2 to the cylinder being recharged stops. After this, another fully charged supply cylinder must be used to finish recharging the cylinder to its full-rated capacity. The majority of gas remaining in the other supply cylinder can be used when you recharge another empty cylinder. The gas transfers itself under its own pressure until the pressure in both cylinders is equal. This method is called cascading. Through this method, the most economical use of the contents of the supply cylinder is made.

To prevent expansion of carbon dioxide in the supply hose, and consequently blocking the hose with CO_2 "snow," you should use a valve with an outlet opening of at least one-eighth inch in diameter-preferably three-sixteenths of an inch. Standard supply cylinders in 50-pound sizes are obtainable with or without a syphon tube. When you order cylinders, specify the ones with a syphon tube. Those without syphons must be inverted during the transfer process.

MAINTENANCE

Maintenance must be performed on all carbon dioxide equipment on a periodic basis. These maintenance procedures are discussed in the following paragraphs.

Once Every Month

Check the level of the oil in the crankcase. See that it is within one-fourth inch of the top of the filling cup or to the upper groove in the measuring stick if the unit is so equipped. If you must add any oil, use only a good grade of SAE viscosity #30 automotive crankcase lubricating oil.

Once Every 6 Months

Lubricate the idler shaft. This shaft is equipped with a fitting of the variety that is commonly used in the automotive field. Two or three "shots" of light cup grease will be ample.

Lubricate the gear teeth with a thin coating of light cup grease.

With a small piece of wood, or preferably a small brush, apply a light coating of Vaseline to the piston rod. To do this, dip the brush in Vaseline, hold the brush against the piston rod, and manually rotate the gears until the piston rod is completely and thoroughly coated with Vaseline.

If necessary, tighten the packing at the piston stem. A special wrench is provided for this purpose. Do not tighten excessively. Because of the design of the packing, it must only fit snugly to hold tightly.

Keep the motor commutator clean and maintain a clean surface. Under normal operating conditions, the commutator will require only occasional cleaning with a dry piece of nonlinting cloth. Do not lubricate the commutator.

Every 12 Months

The oil should be drained from the crankcase and replaced with clean, fresh oil of the quality and viscosity specified.

Once Every 2 Years

The bearing housings of the electric motor should be removed and lubricated. To do this, disassemble the bearing housing. Then clean the inside of the housings, the plates or caps, and the bearings with carbon tetrachloride. Wipe off all grease and reassemble all parts except the outer caps or plates. Apply the new grease, either from a tube or by hand, over and between each ball. When you do this, do not apply more than one-half of an ounce of grease at each bearing.

Too much grease may cause excessive bearing temperature and cause the grease to leak out of the housing to the windings.

Piston Rod Packing

Piston rod packing should be replaced once every 2 years.

To replace the piston rod packing, use the following steps:

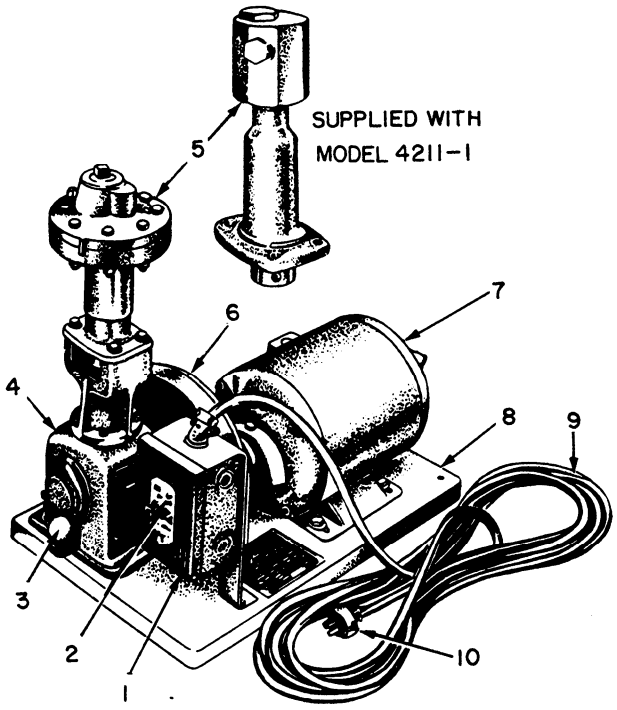
1. Remove the six bolts on top of the cylinder head. Remove the cylinder head.
2. Loosen the hex nut (figure 3-2) at the bottom of the piston rod.
3. Remove the three bolts that hold the cylinder body to the crosshead guide unit.
4. Raise the cylinder body and unscrew the piston rod from the crosshead so that it clears the base.
5. The piston rod packing is now in a position to be replaced. Remove the locknut from the piston rod and then remove the piston rod packing nut.
6. When you replace the flanged-type packing, remember that the packing nut serves only to hold the packing in place. Tightening the nut excessively will not increase its efficiency; the packing nut should not be forced down tight enough to damage the packing flange.
7. After you replace the packing and packing nut, mount the cylinder body on the crosshead guide. Make certain that the locknut is replaced on the piston rod before you screw it into the crosshead.
8. Screw the piston rod into the crosshead until the top edge of the piston packing is flush with the top of the cylinder body, with the crosshead in the uppermost position (figure 3-2). To check this adjustment, rock the crank back and forth; then tighten the locknut at the bottom of the piston rod.
9. Replace the piston head and tighten all the mounting bolts.

WALTER KIDDE TRANSFER UNIT

The Walter Kidde unit, like the SC-5 is designed and manufactured expressly for the purpose of transferring carbon dioxide in its liquid form from one cylinder to another. The unit is supplied complete with the necessary adapters, recharging valves, safety discs and bushings, nuts, bolts, and washers needed to make connections to the cylinders and minor adjustments to the unit. Pump Models 4211 and 4211-1 are driven by a three-fourths horsepower motor and are equipped with a safety switch and lead fitted with a plug. Three-prong plugs and three-wire leads should be substituted for the ordinary two-wire and two-prong arrangement. Pump Models 4306 and 4306-1 are driven by a single-cylinder, four-cycle, three-fourths horsepower, air-cooled engine. Figure 3-3 illustrates the Walter Kidde electric recharge unit, Model 4211.

COMPONENTS

The carbon dioxide transfer unit (figure 3-3) consists of the following major components: compressor assembly (5), running gear assembly



1. Multibreaker.
2. Power switch.
3. Oil fillercap.
4. Running gear assembly.
5. Compressor assembly.
6. Gear guard.
7. Motor.
8. Base.
9. Power cable.
10. Change to three-prong plug.

Figure 3-3.—Walter Kidde Electric CO_2 Transfer Unit, Model 4211.

(4), motor (7), multibreaker (l), power cable (9), and base (8). The only difference between the models lies in the type of compressor supplied; however, the compressors are interchangeable between the models. A spare parts kit, recharging transfer fittings, and charging fittings are used in conjunction with the units.

Motor

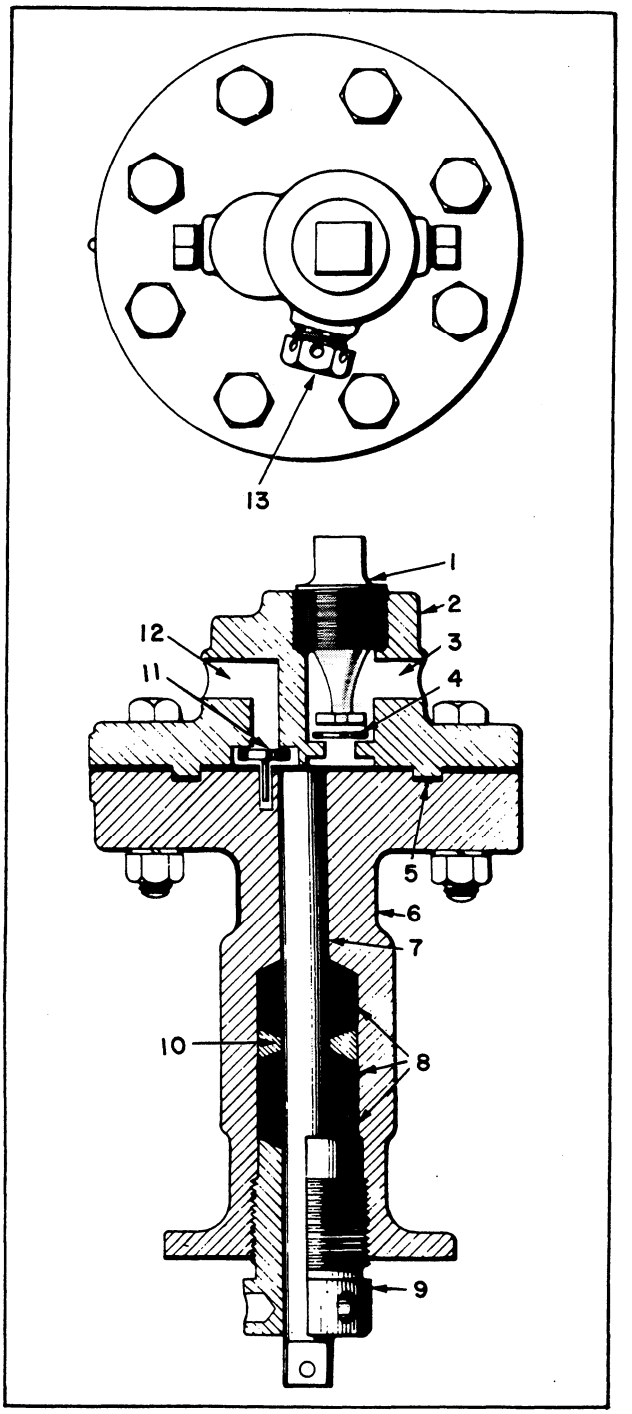
The repulsion start induction single-phase motor, shown in figure 3-3, is a 115- to 230-volt, 60-cycle, three-fourths horsepower unit. It operates at 1750 rpm and draws 9.8 amperes at 115 volts. This type of motor supplies very high starting torque with a very low starting current. In starting, the motor has repulsion motor characteristics; but at running speeds, it functions as an induction motor since the motor windings are automatically short-circuited and the brushes are lifted from the commutator when the operating speed is approached.

Multibreaker

The thermal, magnetic multibreaker, shown in figure 3-3, is a two-pole, 115-volt ac, 20-ampere unit installed to protect the power circuit from overloads. In addition, it acts as a manual ON/OFF switch for the operation of the transfer unit. If the multibreaker trips because of a power overload, you may reset it by placing the switch first to OFF and then to ON.

Compressor Assembly, Model 4211 Carbon Dioxide Transfer Unit

This unit, shown in figure 3-4, is a two-stage, single-action, displacement-type compressor. The running gear assembly actuates the unit and transfers the liquid carbon dioxide from the supply cylinder to the cylinder being recharged. The lower section consists of a cylinder body (6), plunger (7), molded metallic packing (8), spacer (10), and plunger guide (9). The plunger (7), which acts as a piston and transfers the liquid carbon dioxide, is connected to the crosshead of the running gear assembly. The upper section of the unit consists of a cylinder head (2) with an intake and outlet port, an intake valve (11), a discharge valve disc (4), and a discharge valve cap (l). A safety disc and washer, located in the cylinder head behind the safety disc plug (13), releases the carbon dioxide from the compressor when the pressure exceeds the 2650- to 3000-psi range.



1. **Discharge valve cap**
2. **Cylinder head**
3. **Outlet port**
4. **Discharge valve disc**
5. **Gasket**
6. **Cylinder body**
7. **Plunger**
8. **Molded metallic packing**
9. **Plunger guide**
10. **Spacer**
11. **Intake valve**
12. **Intake port**
13. **Safety disc retainer**

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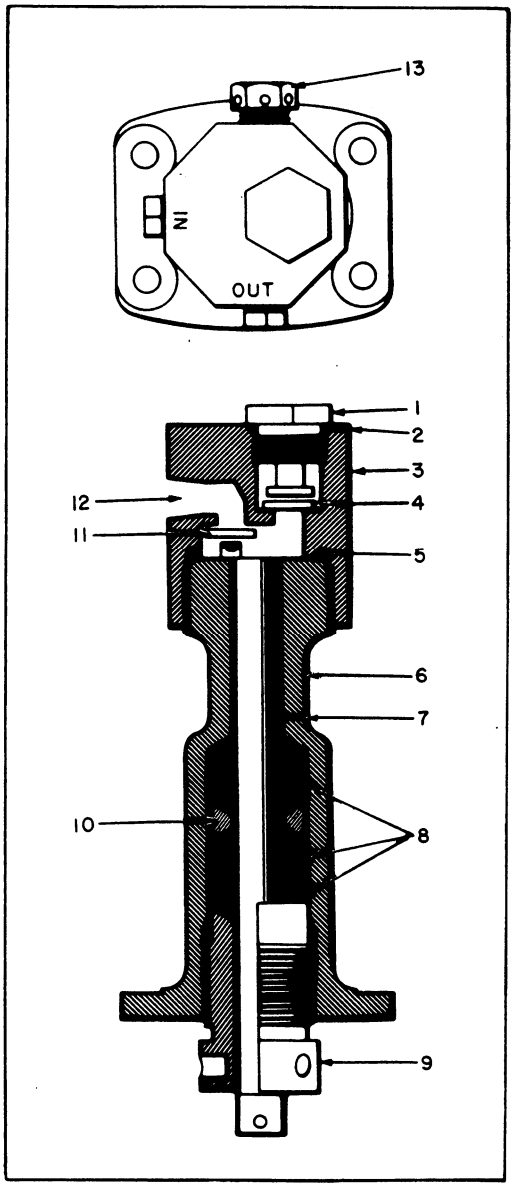
Figure 3-4.—Compressor Assembly, Model 4211 Carbon Dioxide Transfer Unit.



1. Discharge valve cap
2. "O" ring packing
3. Cylinder head
4. Outlet valve check
5. "O" ring gasket
6. Cylinder body
7. Plunger
8. Molded metallic packing
9. Plunger guide
10. Spacer
11. Inlet valve check
12. Inlet port
13. Safety disc plug

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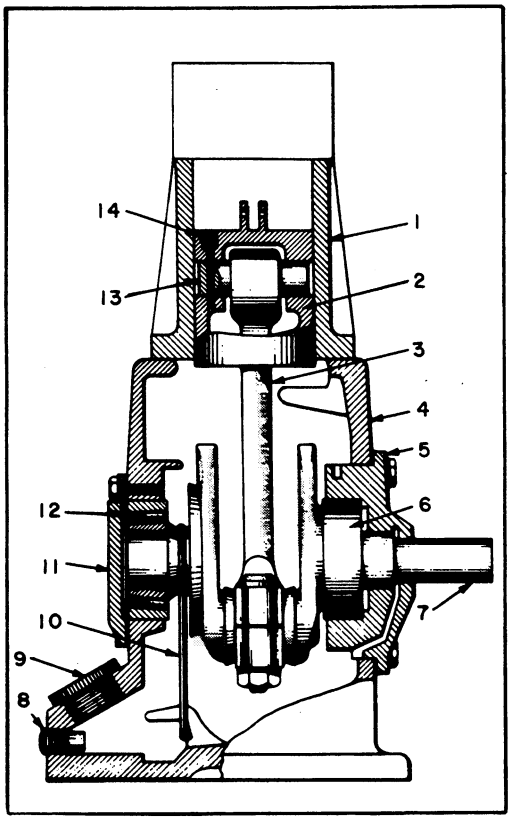
Figure 3-5.—Compressor Assembly, Model 4211-1 Carbon Dioxide Transfer Unit.



1. Crosshead guide
2. Crosshead
3. Connecting rod
4. Crankcase
5. End plate
6. Roller bearing
7. Crankshaft
8. Drain plug
9. Oil filler cap
10. Oil ring
11. End plate
12. Roller bearing
13. Wrist pin
14. Retaining pin

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Figure 3-6.—Running Gear Assembly.

Compressor Assembly, Model 4211-1 Carbon Dioxide Transfer Unit

This unit, shown in figure 3-5, is functionally similar to the compressor described for the 4211 unit. The lower section of the compressor consists of a cylinder body (6), plunger (7), molded metallic packing (8), spacer (10), and plunger guide (9). The upper section of the unit consists of a cylinder head (3) with an inlet and outlet port, an inlet valve check (11), an outlet valve check (4), and a discharge valve cap (l). A safety disc and washer located in the cylinder head behind the safety disc plug (13) releases the carbon dioxide from the compressor when the pressure exceeds the 2650- to 3000-psi range.

Running Gear Assembly

The running gear assembly, shown in figure 3-6, consists of the crankcase (4), crosshead guide (l), crosshead (2), connecting rod (3), and the

crankshaft (7) riding in two roller bearings (6 and 12) mounted in the end plates (5 and 11). Mechanical connection to the motor is made by means of a gear keyed to the crankshaft and meshed with the driving gear on the motor shaft. The two gears are enclosed by the gear guard (6, figure 3-3). Access to the oil reservoir within the crankcase is obtained through the oil filler cap (9). The crankcase can be drained by removing the drain plug (8).

SERVICE AND OPERATIONAL INSTRUCTIONS

Much of this information has been discussed for the Model SC-5 transfer unit and need not be repeated; however, where we note a difference, we will discuss it.

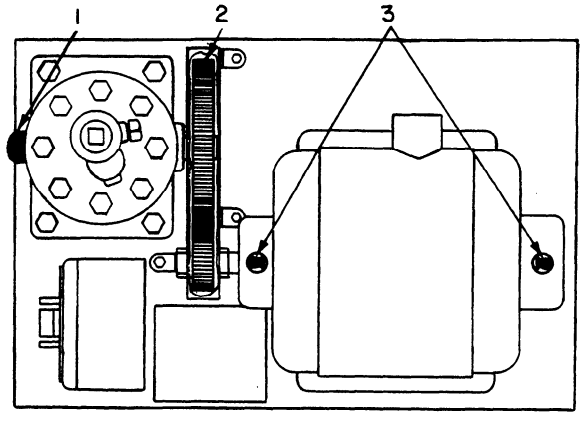
After you uncrate and inspect the unit, make certain that the crosshead clears the packing nut. To do this, turn the master gear attached to the crankshaft. The mechanism must work freely.

Fill the crankcase with a standard grade of SAE #20 motor oil. CAUTION: Do not use any oil or grease in the cylinders or in any of the adapters or hose connections used to convey carbon dioxide. (Since this precaution was not specifically stated in the instructions for the adapters connected to the SC-5 pumping unit, we are not implying that oil or grease can be used in the adapters of Model SC-5.) In any case, follow the manufacturer's instructions. Do not add to or subtract from anything in the manufacturer's manual. Obviously, however, where the Naval Air Systems Command (NAVAIRSYSCOM) directives are concerned, they will take precedence over the manufacturer's instructions. Walter Kidde instructions direct you to use a 10-inch wrench to tighten all hose-connecting joints. While tightening the hose, you should be careful not to twist them.

A strainer and strainer adapter are inserted into the inlet line (at the supply cylinder) to the pump. They prevent any dirt or metal filings that may accumulate in the supply cylinder from blowing over into the pump and impairing the action of the valves. Knowledge of the function of the strainer is important to you when you analyze the cause of malfunctioning pump valves or other associated parts.

MAINTENANCE

The normal maintenance on this pump is limited to proper lubrication. Figure 3-7 shows



Index No.	Item	Lubricant	Specification	Lubricating Periods
1	Crankcase	Oil; Lubricating, aircraft engine; Grade 1N20	AN-0-8	30 Hrs.
2	Transfer gears	Grease; High temperature lubricating	AN-G-5a	30 Hrs.
3	Motor bearing oil cups	Oil; General purpose	AN-0-6	30 Hrs.

240.107

Figure 3-7.—Lubrication points.

the different lubrication points for the Walter Kidde Model 4211 transfer pump. We also recommend you drain the oil in the crankcase after every 150 hours of operation. The crankcase holds 1 pint of SAE #20 lubricating oil.

CAUTION

Do not introduce oil or grease into the compressor assembly or into the adapters or hose connections used to transfer the carbon dioxide.

Troubleshooting

Table 3-1 is from the operating manual for the Walter Kidde unit. It lists possible troubles that may occur during the operation of the carbon die-tide transfer unit, their probable cause, and indicated remedy.

Plunger Packing

Vapor leaks at the plunger packing are sometimes impossible to overcome. An invisible

Table 3-1.—Troubles that may occur during the operation of the carbon dioxide transfer unit, their probable cause, and indicated remedy

TROUBLE	PROBABLE CAUSE	REMEDY
SUFFICIENT CARBON DIOXIDE NOT TRANSFERRED TO CYLINDER BEING RECHARGED	Supply cylinder contains less than 10 pounds of carbon dioxide	Use a fully charged supply cylinder. Reserve the partially charged cylinder only to start the charging of empty cylinders.
	Carbon dioxide snow in connecting lines	Stop operation, break connections, remove snow, and clean lines.
	Foreign matter in strainer	Clean strainer.
	Foreign matter on inlet valve and discharge valve disc	Remove and clean.
	Damaged inlet valve or discharge valve disc	Replace.
	Worn crankshaft bearings in running gear assembly	Replace running gear assembly.
	Binding of running gear assembly due to lack of lubrication	Check for damage and lubricate.
VAPOR LEAKS	Loose packing	Tighten plunger guide.
	Worn packing	Replace packing.
	Loose cylinder head	Tighten.
PUMP DOES NOT OPERATE	Defective wiring	Check all wiring.
	Defective motor	Replace motor.

vapor leak will not affect the performance of the pump; no particular effort need be made to eliminate a leak unless it reaches the point at which it becomes visible. If a leak should develop at the lower end of the plunger, tighten the plunger guide, shown in figure 3-8, with a rod (approximately 3/8 inch by 6 inches). Do not bind the plunger by tightening it too snugly. When you can no longer adjust the tightness of the plunger guide, remove the compressor body from the frame and insert new packing as follows:

1. Unscrew the four bolts that hold the compressor body to the crosshead guide and remove the pin that holds the plunger to the crosshead.

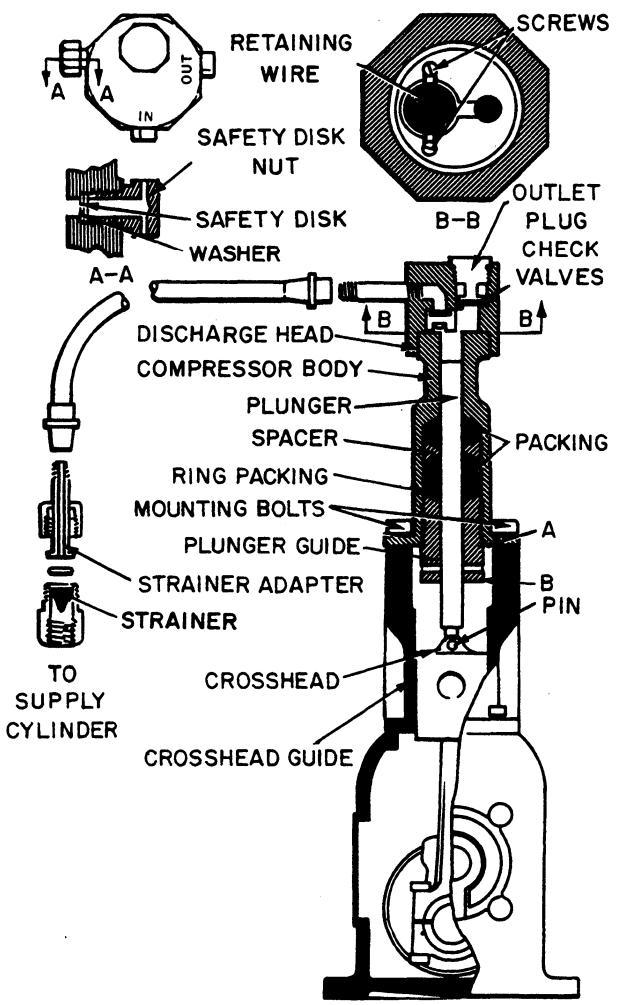


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Figure 3-8.—Compressor assembly of the Walter Kidde CO_2 transfer unit.

2. Place the compressor body in a vise and remove the plunger guide and old packing. Insert only the two large pieces of packing and the spacer. Then insert the plunger guide and turn it down as far as possible to compress and form the packing around the plunger. This operation will cause the plunger to bind, but you can free it by turning and working the plunger up and down a few times.

3. Remove the plunger guide and insert the small ring of the packing. Install the packing so that the level fits the packing already in place and the plunger guide. Replace the plunger guide and turn it in until the maximum dimension between the body at point (A) and the end of the plunger guide (B) (figure 3-8) is 1 3/16 inches. If the plunger guide is not screwed in sufficiently, the crosshead will strike the plunger guide. To free the plunger, work it back and forth several times.

4. Replace the compressor body and extend the plunger so that it can be lined up with the crosshead and the pin being replaced. After you connect the end of the plunger with the crosshead, which may have had to be moved to its top position to accomplish the connection, tighten the bolts securely. Turn the master gear several revolutions by hand to make sure the crosshead does not strike the plunger guide.

Safety Disc

Figure 3-4 and 3-5 illustrate the safety disc arrangement located in the discharge body. The method of removal and replacement of the safety disc is self-evident in the illustration; however, never use a disc that is stronger or weaker (tensile strength capacity) than specified.

Cleaning

No foreign matter should be in the areas of recharging pump connections. If a decrease is noted in the amount of carbon dioxide transferred (it should be approximately 80 percent of the supply cylinder), remove the two check valves (figure 3-5) in the compressor head and clean them. To do this, remove the discharge head body (right-hand thread). Then remove two screws and the retaining wire. The inlet check will then be accessible. You can remove the outlet check by unscrewing the plug. Clean both checks and the seat thoroughly.

The strainer on the inlet line (from the supply cylinder) should be cleaned frequently for maximum efficiency of the pump.

NOTE: Remember you are dealing with high--pressure gas. Before attempting to recharge any extinguisher, you should become thoroughly acquainted with the recharging pump and the methods of recharging. Carefully read the instructions that pertain to the recharge pump and be sure all connections are tight at all times.

CO_2 CYLINDERS AND SAFETY DISC

Carbon dioxide cylinders should be charged with "bone-dry" carbon dioxide. Extreme care must be taken in the charging, weighing, sealing, and testing of cylinders.

The safety discs of the cylinders are painted various colors to identify the pressure at which they will rupture. The correct color disc must be used in every case. All cylinders are manufactured in accordance with the requirements of the Interstate Commerce Commission (ICC) as set down by the Bureau of Explosives. These requirements specify that the cylinder be tested to five-thirds of its normal working pressure and that the normal working pressure be stamped on the cylinder immediately following the letters ICC3A. We refer to this procedure as hydrostatic testing. Common cylinder stampings and the corresponding test pressures are as follows:

Cylinder Stamping	Test Pressure	Color of Permissible Disc
ICC 3	3000 psi	White
ICC 3A 1800	3000 psi	White
ICC 3A 2015	3360 psi	White
ICC 3A 2205	3680 psi	White or red
ICC 3A 2300	3840 psi	White or red

You should never use a disc in a valve where it would be working in connection with a different type of safety disc retainer. Never trim a safety disc to fit a valve other than the one for which it was intended.

You will find similar markings on the shoulder of every cylinder.

ICC 3A 1800 W. K. & Co.
221974 10-84
H

An explanation of these marks follows:

ICC 3A 1800 signifies the specific ICC test procedure followed. The number 1800 indicates the service pressure.

221974 is the cylinder serial number. Some cylinders have one or two letters as part of the serial number. (The U.S. Navy also assigns one of their numbers to all cylinders they purchase. This number has the letters USN accompanying it.) The letter H in a shield is the designation mark of the accredited ICC inspecting laboratory that supervises our tests.

The letters W. K. & Co designate the manufacturer of the cylinder.

The numbers 10-84 mean that the cylinder was tested in October of 1984 and that its next test will be October 1989.

Before any cylinder is recharged, the date must be checked; if more than 5 years has elapsed, the cylinder must be retested hydrostatically. The date of the retest is then stamped on the cylinder directly under the original date. This new date is the one against which future checks should be made.

Remember you are dealing with high-pressure gas. Before recharging any cylinder, you must become thoroughly familiar with the proper procedure for recharging.

When you handle or ship cylinders, the shipping cap should always be assembled on the cylinder. On cylinders where this is not possible, the cylinder should be carefully crated.

Be thoroughly familiar with these procedures before you attempt to recharge any cylinder. A few minutes spent on becoming familiar with the procedure may prevent an accident involving injury to personnel or damage to equipment.

WINTERIZING CARBON DIOXIDE CYLINDERS

The PR is not normally tasked with the responsibility of recharging fire extinguishers and engine fire bottles. However, you may be assigned to an AIMD that supports aircraft that require winterizing of CO_2 cylinders.

All carbon dioxide portable fire extinguishers installed in aircraft and all aircraft carbon dioxide built-in engine fire extinguishers are serviced to operate throughout the temperature range of –65°F to 160°F. The extinguishers are supercharged with the addition of 200 psi of dry, oil-free nitrogen. This servicing of extinguishers is done in connection with the U.S. Air Force winterization program. Extinguishers charged to meet this winterization requirement are identified by a yellow dot, three-fourths of an inch in diameter or larger, on opposite sides of the cylinder. Extinguishers so marked are winterized

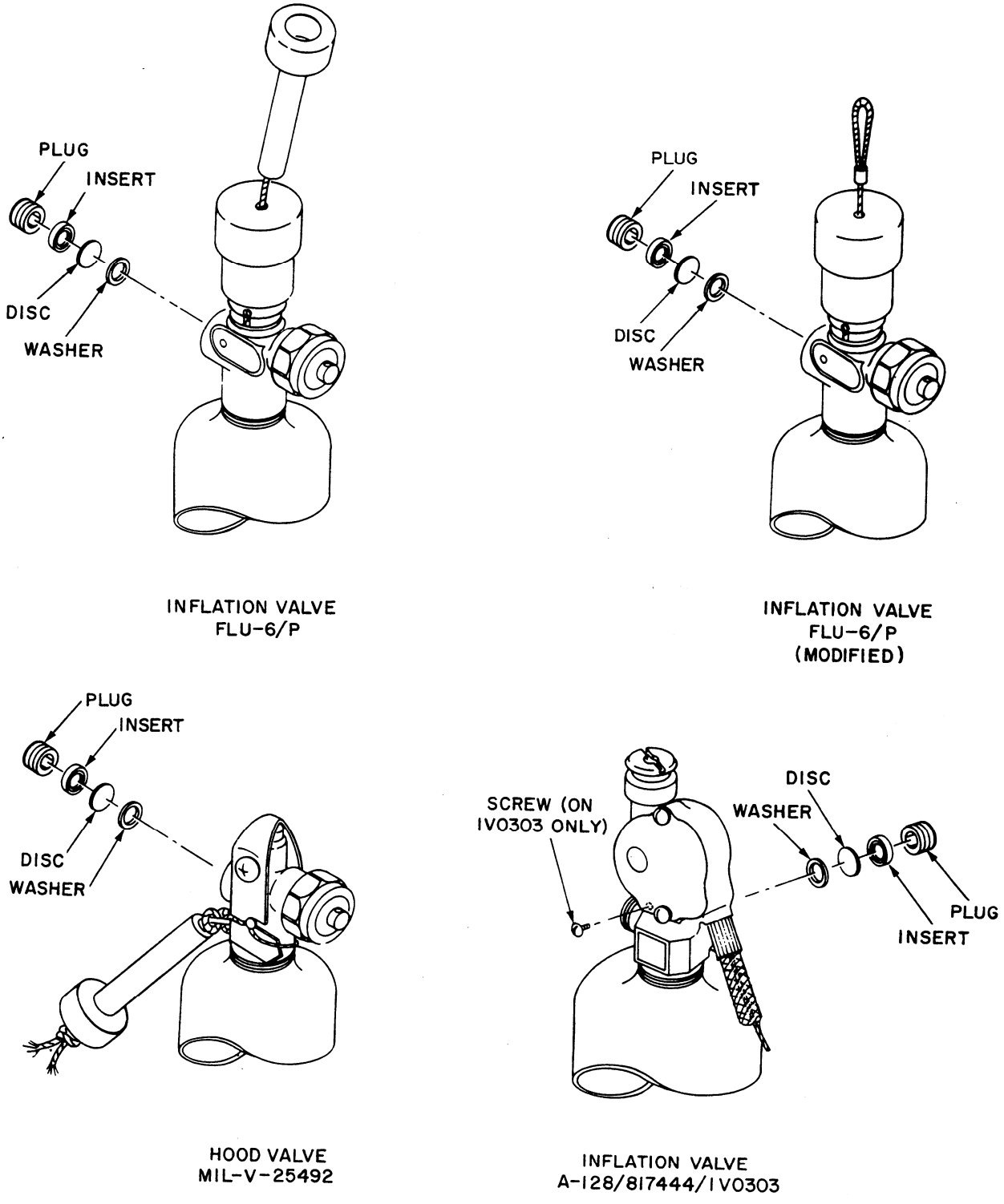

Figure 3-9.—Disassembly of Inflation Valve Safety Disc Assembly.

by the introduction of nitrogen at 200 psi and then the addition of a proper charge of carbon dioxide.

The addition of nitrogen in carbon dioxide cylinders provides additional pressure. This pressure expels the carbon dioxide at extremely cold temperatures (below 0°F) at a much higher rate than would the pressure of the carbon dioxide itself. Winterized cylinders have a carbon dioxide charge less than rated capacity. As a result the total pressure is lower at high temperatures than with rated charge, even though nitrogen has been added. Thus winterized cylinders can be subjected to 160°F without the safety disc rupturing.

REPLACING SAFETY DISCS AND WASHERS ON INFLATION VALVES

If you are not familiar with the flotation equipment, replacing safety discs and washers on the various CO_2 cylinders can be very difficult. You will need some special tools to replace the safety disc and washers on inflation valve assemblies A-128/817444, MIL-V-81722 (Flu-6/P), and MIL-V-25492 (figure 3-9). You will require a torque wrench, a five-sixteenth inch socket, and apiece of hex stock 5/16 x 2 inches long. Once you have these tools, changing the safety disc will be a simple process.

WARNING

Before you perform any work on inflation valves, ensure that CO_2 inflation assemblies are completely discharged. Do not remove the valve or valve safety disc plug from a charged CO_2 assembly.

Insert the 5/16- x 2-inch stock into the disc plug and remove the safety disc plug. Then insert the safety disc and washer as shown in figure 3-9. To replace these items, simply reinstall them into the inflation valve. Remember to install new washers and safety discs. Use a torque wrench to make the following torque valve adjustments.

Valve	Torque (lb)
A-18	29
MIL-V-81722 (Flu-6/P)	15-17
MIL-V-25492 (Hood valve)	28-35

NOTE: While you are tightening the safety disc plug, align the insert with the plug.